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| **Learning Planner** | | | | | | | | | |
| **Subject** | *General science* | **Week** | | *7* | **Duration** | *180 min* | **Form** | *SHS 1* | |
| **Strand** | *EXPLORING MATERIALS* | **Sub-Strand** | | SCIENCE AND MATERIALS IN NATURE | | | | | |
| **Content Standard** | Know, understand, and identify the roles of solids in life | | | | | | | | |
| **Learning Outcome(s)** | Explain the functions of solids in life. | | | | | | | | |
| **Learning**  **Indicator(s)** | Discuss the relationship between binary compounds, the composition of binary compounds and the names of compounds. | | | | | | | | |
| **Essential Question(s)** | What rules governed the formation of binary compounds?  How are binary ionic compounds different from covalent birnary compunds?  What materials will be needed to demonstrate to learners binary compounds*?* | | | | | | | | |
| **Pedagogical Strategies** | * Collaborative learning * Research method * Demonstration * Talk-for-learning approaches | | | | | | | | |
| **Teaching & Learning Resources** | * Internet resources such as Massive Open Online Courses (MOOCs); (<https://www.youtube.com/watch?v=N4MdZx1fgbA>; <https://www.youtube.com/watch?v=ZcF8E8aAOGs>; <https://www.youtube.com/watch?v=vTq4sgGd2QU>) * Projectors * Charts * Pictures of Binary compounds, * Equations and reaction equations * Books and Journals. * Videos on the relationship between binary compounds, chemical equations, and names of compounds * Models | | | | | | | | |
| **Key Notes on Differentiation** | | | | | | | | | |
| 1. Learning Tasks:  * A compound is formed by burning magnesium in air * What is the chemical name of the resulting compound and its chemical formula? * Explain how the compound is formed, etc.  1. Pedagogical Exemplars:    * + - Discuss with learners on the basic concepts of binary compound naming. Use leading questions to engage learners in conversations about the patterns and rules involved in naming binary compounds. Encourage them to share their prior knowledge and build on it collaboratively.        - Create a concept map on the board illustrating the connections between elements, ions, and naming conventions for binary compounds. Encourage learners to contribute to the map throughout the lesson.        - Provide models representing different elements and ions, demonstrating how they combine to form binary compounds. Use interactive simulations or animations to illustrate the formation and naming processes.        - Incorporate real-world examples, such as common household compounds, to illustrate the application of naming rules. For example, table salt, caustic soda, and baking soda.        - In mixed groups, learners can research and prepare short presentations on specific aspects of binary compound naming.        - Provide a set of binary compounds for learners to name, encouraging them to work through the naming rules independently or in groups. Offer feedback and discuss solutions collectively to reinforce learning, etc. 2. Key Assessments (DoK)  * Level 1: Write the chemical formula of one compound formed between each of the following elements: Magnesium and Chlorine; Sodium and Bromine; Carbon and Oxygen.   Level 3: Compare a compound formed between Sodium and Chlorine with one formed between Hydrogen and Nitrogen. Use this information to answer the question below: Write down the name of each compound. Write the chemical formula for each of the compounds you have named above. Identify the type of bond in each compound and three differences between the compounds, etc. | | | | | | | | | |
| **Keywords** | Solubility, binary, composition etc | | | | | | | | |
| **Lesson 1**  **Naming of binary compounds** | | | | | | | | |
| **Main Lesson drawing on Concepts, Skills and Competencies to reinforce as in the Subject Teacher Manual** | | | | | | | | |
| ***Teacher Activity*** | | | ***Learner Activity*** | | | | | |
| **Starter *Activity (10 minutes)***  *Ask learners in their mixed ability groups to name 3 binary ionic compounds and 3 covalent binary compounds*  *Learners in their mixed ability groups named 3 binary ionic compounds and 3 covalent binary compounds.* | | | | | | | | |
| ***Introductory Activity (15minutes)***  *Ask learners to identify the individual elements that form the compound Magnissium Oxide (MgO).*  ***Activity 1 (10 minutes)***  *Show leanerns a sample MgO*  ***Activity 2 (40 minutes)***  *Guide learners to burn samples of Magnissium in their mixed ability groups.*  *Ask learners to observe the compound formed from the burning of magnesium, and present their observations.* | | | ***Introductory Activity***  *Learners identify the individual elements that form the compound MgO*  ***Activity 1***  *Learners observe a sample MgO*  ***Activity 2***  *Learners burn samples of Mg and presented their observations in their mixed ability groups* | | | | | |
| **Assessment DoK aligned to the Curriculum and Subject Teacher Manual** | | | | | | | | | |
| Level 1: Write the chemical formula of one compound formed between each of the following elements: Magnesium and Chlorine; Sodium and Bromine; Carbon and Oxygen. | | | | | | | | | |
| **Lesson Closure**  ***In completing this part, refer to the Essential Questions to check that learning has taken place.*** | | | | | | | | | |
| ***Activity (15 minutes)***  *Using think pair share, ask learners to brain-storm the compound formed when following elements compound with Oxygen*  *Lithium*  *Potassium*  *Calcium* | | | | | | | | | |
| **Reflection & Remarks** | | | | | | | | | |
| *Reflection:*  *Remarks:* | | | | | | | | | |
| **Lesson 2**  **Naming of binary compounds** | | | | | | | | |
| **Main Lesson drawing on Concepts, Skills and Competencies to reinforce as in the Subject Teacher Manual** | | | | | | | | |
| ***Teacher Activity*** | | | ***Learner Activity*** | | | | | |
| **Starter *Activity (10 minutes)***  *Teacher: Ask learners to receite the first twenty elements of the Periodic Table*  *Learners: Receite the first twenty elements in the Periodic Table* | | | | | | | | |
| ***Introductory activity (25 minutes)***  *Ask learners in their mixed ability group to name five binary compounds*  ***Activity 1 (40 minutes)***  *Show vedio of how binary compounds (CaO,) is formed.*  ***Activity 2 (40 minutes)***  *Ask learners to demonstrate how the binary compound (MgCl2, NaCl, Al3Cl) are formed in their mixed ability* | | | ***Introductory activity (25 minutes)***  *Name five binary compounds in their mixed ability groups*    ***Activity 1***  *Learners watch the video of how binary compounds are form*  ***Activity 2***  *Learners demonstrate how MgO and NaCl are formed.* | | | | | |
| **Assessment DoK aligned to the Curriculum and Subject Teacher Manual** | | | | | | | | | |
| **Level 2: Demostrate how the binary compounds MgO, NaCl, CaO are formed.** | | | | | | | | | |
| **Lesson Closure**  ***In completing this part, refer to the Essential Questions to check that learning has taken place.*** | | | | | | | | | |
| ***Activity (15 minutes)***  *Ask learners to discuss in their mixed ability group the principles that under-pin the formation of binary compounds.* | | | | | | | | | |
| **Reflection & Remarks** | | | | | | | | | |
| *Reflection*  *Remarks*  *Lesson was successful* | | | | | | | | | |